1. Utilize existing groups/programs responsible for information dissemination when appropriate and feasible such as:
   - UC Cooperative Extension
   - National and California Sea Grant
   - Western Regional Panel
   - California Exotic Plant Pest Council

ACTION 3I: Establish monitoring, tracking, survey programs to evaluate the effectiveness of information/education efforts.

OBJECTIVE 4: FUNDING AND RESOURCES

INVESTIGATE, IDENTIFY AND DEVELOP SOURCES OF FUNDING TO SUPPORT PREVENTION ACTIVITIES, CONTROL EFFORTS AND ACTIONS TO REDUCE NEGATIVE IMPACTS.

ACTION 4A: As information is developed about potential species that may impact CALFED actions, identify public and private entities that may also be specifically impacted by the species for program support.

ACTION 4B: Submit the CALFED NIS Strategic and Implementation Plan and a request for support to the ANS Task Force as a regional management plan.

ACTION 4C: Identify sources of Rapid Response Funds to address emergency actions taken to attack a relatively new infestation of NIS that may possibly be eradicated with early intervention.

ACTION 4D: Create a matrix of funding programs vs. types of NIS prevention needs.

ACTION 4E: Develop support for NIS prevention programs by state and federal agencies, environmental groups, academic institutions, and others.

ACTION 4F: Develop criteria for identifying and prioritizing funding needs both for short term rapid response and long term for more sustained funding.

OBJECTIVE 5: MONITORING, MAPPING, AND ASSESSMENT

DEVELOP AND ENHANCE MONITORING AND EXCLUSION PROGRAMS TO PREVENT INTRODUCTIONS, PROVIDE FOR EARLY DETECTIONS, LIMIT SPREAD AND REDUCE IMPACTS IN COOPERATION WITH CMARP AND OTHER NIS PROGRAMS. THIS OBJECTIVE IS CLOSELY LINKED TO RESEARCH, OBJECTIVE 6.

ACTION 5A: Establish new and participate in and/or review existing monitoring programs to detect new introductions and detect the spread of existing populations.

1. Working with CMARP, determine how existing monitoring programs can be adjusted to detect the appearance of any new species susceptible to their sampling methods. Also determine a process of notification should a new species be detected.

2. Working with CMARP, develop species specific monitoring programs as needed to detect the appearance of a specific NIS in the CALFED area of concern. Also determine the process of notification should that species be detected.

ACTION 5B: Develop and recommend materials suitable to educate and train monitoring groups and field scientists in the detection and recognition of new NIS introductions.

1. Develop a list of experts for each taxonomic group.

2. Support development of appropriate keys to facilitate identifications of established and invading organisms.

ACTION 5C: Evaluate NIS data to develop information for CALFED Programs and managers to assist with directing CALFED actions.

ACTION 5D: Develop a comprehensive relational database with georeferenced data documenting habitat and landscape features as well as vector information for use with GIS to assess the distribution of likely sites for new invasions.

1. GIS system would be used in conjunction with GIS showing jurisdictional boundaries to establish authorities and permitting requirements.

2. GIS will be used to project the rate of future spread based on changing distribution patterns, habitat and landscape variables.

ACTION 5E: Participate with the Science Coordinating Committee of the California Biodiversity Council in cooperating on developing the links to other organizational resource databases.

OBJECTIVE 6: RESEARCH

SUPPORT AND COORDINATE SCIENTIFIC INVESTIGATION BY RESEARCHERS FROM STATE AND FEDERAL AGENCIES, ACADEMIC INSTITUTIONS, NONPROFITS AND OTHER ORGANIZATIONS THAT ADDRESS POTENTIAL MANAGEMENT STRATEGIES TO PREVENT THE INTRODUCTIONS, LIMIT SPREAD AND REDUCE THE HARMFUL IMPACTS OF NIS INTO THE SAN FRANCISCO BAY-DELTA, SACRAMENTO-SAN JOAQUIN RIVERS AND THEIR WATERSHEDS.

ACTION 6A: In partnership with other states and federal agencies, academic institutions and environmental groups develop specific and regional listings of NIS, that have the potential to infest or spread and negatively impact the ecosystems of the CALFED solution area.

1. Utilize existing knowledge base to develop lists of NIS that represent a potential threat to invade CALFED areas of concern.
2. Utilize the above list to develop a decision-making matrix which includes the pathways, vectors, impacts, control feasibility and options of specific organisms.

3. Evaluate the matrix to determine the species most likely to arrive, least likely to be managed or controlled successfully and very likely to create a high level of negative impacts.

4. Develop a process to prioritize research needs encompassing CALFED objectives and program elements that would provide information necessary to make informed judgements about targeting species.

ACTION 6B: Promote support of appropriate biosystematic infrastructure, including alpha-taxonomy, genetics, maintaining collections and enhancing expertise through the combined efforts of public agencies, universities, NGOs and other groups. Define alpha-taxonomy: species determination based on existing published morphology and anatomical characteristic and taxonomic keys.

ACTION 6C: Conduct or promote research on selected species that threaten to invade via state or federal research initiatives, academia, or the private sector.

1. Evaluate the potential interaction between NIS, if it were to establish, and native biota of the CALFED area of concern. (found in the CALFED Habitat Conservation Strategy). (examples *Spartina alterniflora* and *S. foliosa*, green crab and *Cancer magister)*

2. Investigate the interactions between NIS, habitat restoration efforts and CALFED activities including conveyance, etc.

3. Support research to develop information that may translate into management actions to prevent, control, limit spread or eradicate NIS. Work cooperatively with industry and stakeholders whenever possible. Such topics may include:
   - Reproductive and dispersal mechanisms
   - Viability
   - Life history
   - Suitable habitats
   - Biocontrol
   - Ecological interactions with native flora and fauna
   - Integrated pest management
   - Genetic diversity
   - Geographic origin
   - Hybridizing ability
   - Early detection technologies
   - Invasibility of Ecosystems

4. For organisms determined to be especially harmful and difficult to control, support early detection efforts and rapid response activities.

5. Whenever possible, support the development and documentation of information about NIS impacts to the food web and how those impacts may relate to efforts to revive specific populations of concern.

ACTION 6D: Coordinate with CMARP to support the conduct of research to investigate the establishment of beneficial, native organisms as part or restoration or rehabilitation actions. Recommend that CALFED policy include the proactive use of native species during restoration activities whenever possible.

ACTION 6E: Incorporate the information obtained through monitoring and research to ensure that CALFED actions do not contribute to the spread of NIS.

ACTION 6F: Develop/implement mitigation/control activities to reduce/eradicate populations of targeted NIS.

1. Assess physical, chemical and biological mechanisms with respect to economy, efficiency, species-specificity, efficacy, timeliness, and all associated risks/impacts.

2. Create work group with expertise on the biology of the species and with knowledge of the habitats and economic systems being impacted.

3. The work group will develop a list of control activities ranging from Rapid Response (in coordination with other Rapid Response efforts) to long term site/facility specific activities to mitigate impacts.

4. Develop list of criteria to be used to evaluate the success of the control activity as well as criteria to evaluate any negative impacts from control efforts.

ACTION 6G: Evaluate the economic significance of the overall impacts for NIS with respect to impacts on industrial facilities, water diversions, transportation and commerce activities, fisheries and agricultural activities, navigational needs and recreational activities, etc.

1. Develop a means of valuation of economic impacts in collaboration with economic professionals.

2. Develop a database that includes measurable economic impacts and estimated values of NIS on above activities and facilities.

3. Include this information in the matrix of Goal II, Action 6A1.

4. Based on these estimates, develop a priority ranking of economic impacts associated with different NIS.

ACTION 6H: Support the evaluation of the public health risks of NIS.

1. Determine the identity of species of public health interest (e.g. Cholera bacteria) likely to be coming into SF Bay or Delta.

2. Identify the vectors associated with NIS species of public health interest.

3. Develop a priority list of the most likely and the most dangerous species of public health interest based on information and recommendations developed by public health agencies.

ACTION 6I: Develop human behavior and activity modification recommendations wherever feasible to reduce the negative impacts of NIS.

OBJECTIVE 7: TECHNOLOGY AND INFORMATION TRANSFER

ENSURE THE AVAILABILITY OF ALL INFORMATION AND TECHNOLOGY DEVELOPED THROUGH THIS PROGRAM TO CALFED PROGRAM MANAGERS FOR MANAGEMENT AND POLICY DECISIONS AND TO OTHER INTERESTED PARTIES.

ACTION 7A: Encourage and support the publication and distribution of NIS information directly relevant to CALFED restoration activities in readily available and user friendly formats to promote informed decisions and actions.

ACTION 7B: Establish NIS LIST SERVE and NIS web pages on the CALFED website to facilitate information transfer with links to CMARP.

ACTION 7C: Encourage and support the publication of information developed through this program in appropriate and accessible media.

ACTION 7D: Provide regular updates of information developed through this program to organizations

such as: the ANS Task Force, WRP, industries (i.e., aquaculture, bait), water agencies, irrigation districts, the Western Weed Coordinating committee and other interested parties.

ACTION 7E: In cooperation with CMARP, provide education and training for personnel responsible for monitoring to acquaint them with NIS infestations and spread potential.

ACTION 7F: Utilize existing technology transfer programs (such as IEP, ICE_NRPI) and when necessary, work through CMARP to develop new programs to distribute research findings and technology advances.

OBJECTIVE 8: ENFORCEMENT AND COMPLIANCE

DEVELOP AND SUPPORT EFFECTIVE ENFORCEMENT AND COMPLIANCE MEASURES WHICH ADDRESS PREVENTION, CONTROL/ERADICATION AND REDUCTION OF NEGATIVE IMPACTS.

ACTION 8A: Through NISAC, establish and encourage improved enforcement and compliance with regulations and authorities which will contribute to the prevention, control, or eradication of NIS.

ACTION 8B: NISAC will review existing enforcement programs and recommend improvements, changes or additional programs as needed.

ACTION 8C: Encourage the expansion and enhancement of the operations, responsibilities and funding of such prevention activities as the CDFA border inspection stations.

ACTION 8D: Inform public health agencies of NIS infestations which may have public health implications.

ACTION 8E: Support and enhance the operations and projects of the organizations responsible for ongoing enforcement and compliance programs to limit spread of NIS.

ACTION 9A: Evaluation program will be specified for each Action and/or Task undertaken as part of this plan.

1. The evaluation will address CALFED goals and objectives, as well as the NIS Program goals and objectives.

2. The evaluation will be inclusive, involving those with implementation responsibility, resource user groups and other affected by the program or plan implementation.

ACTION 9B: Convene annual workshop which includes some presentations, facilitated discussion about NIS research, management advances, and problems to evaluate current progress and future needs.

ACTION 9C: An annual report highlighting progress, achievements and revisions will be prepared, distributed and made available on the web site.

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